

UNITED STATES GOVERNMENT

Memorandum

R - M.L. - Imp.

TO : Refuge Manager, Medicine Lake Refuge
Medicine Lake, Montana

FROM : Regional Supervisor, Division of Wildlife Refuges
Portland, Oregon

SUBJECT: Annual Water Program - 1967

DATE: March 21, 1967

The annual water programs for Medicine Lake and Lamesteer Refuges have been reviewed by this Division and the Division of Engineering and are approved.

Vernon Ekedahl
Vernon Ekedahl



5010-108

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

Regional Director, Bureau of Sport Fisheries
& Wildlife, Portland, Oregon

December 16, 1966

Refuge Manager, Medicine Lake Refuge,
Medicine Lake, Montana

Annual Water Program

Attached for your approval is the 1966-67 Annual Water Program
for Medicine Lake Refuge.

We are uncertain if Form 1 BYD 104.0 is still required? If it is,
please send us 9 copies of this form and we will complete them as
soon as possible.

Donald M. White

MEMORANDUM - Bureau of Sport Fisheries and Wildlife

To: All Refuge Managers, Region I

From: Regional Supervisor, Division
of Wildlife Refuges, Portland, Oregon

Subject: Annual Water Program

December 8, 1966

Annual Water Programs are due in this office January 15, 1967 for all refuges including satellites. These programs should be prepared in accordance with Section 3281 of the Refuge Manual.

It is important that records be kept and reported on as accurately as possible regardless of whether we are operating under water rights or whether we have control of water flows. Increasing competition for the use of water makes it imperative that we establish the best possible history of water use on refuges.

The program should provide the following basic information:

1. A report on water availability and use during calendar year 1966. If water supplies were above or below normal, comments on the effect of such levels on habitat should be included.
2. Recommendations for water use and water levels during calendar year 1967. Where levels cannot be controlled, use of water should be planned for anticipated availability.

Accurate recording of water on forms that have been provided by the Division of Engineering should also be continued.

Vernon E. Schell
Vernon E. Schell

1-1
1 HYD 10/10/66
1-10 10/10/66

See 3221

Eng

Mr
R. Water

MEMORANDUM - U. S. Government

TO : Mr. W. A. Hargrove, Region 1
FROM : Regional Supervisor, Division of Wildlife
Refuges, Portland, Oregon

November 24, 1955

Subject: Annual Water Program (Supplement to Form of November 4, 1955)
Annual water programs are due in this office January 15, 1956 for all
refuges including rehabilitations. These programs shall be prepared in
accordance with Section 302.1 and Appendix B of the Refuge Manual.
The 1-104-104.0 Annual Summary of Water Use has been prepared to provide
a uniform method of reporting the information required by Paragraph 4 of
Appendix B of the Refuge Manual. All water used on the refuge shall be
reported in both on this summary form listing each source and type of
right separately such as:

Source	Type of Right	Priority
Boyle Creek	1/ C 1001	Jan. 18, 1872
Harwood River	Vested	"
Swampy	Contract 14-16-311	"
Kell 51	2/ B 1001	Nov. 24, 1958
So. River	Flood	"
Spring	"	"

1" means Beneficial Use of Water Right
2" means Reserved Water Right

All columns of the summary shall be fully filled out and the use may be
further described by footnotes to show which are rice fields, pasture,
glands, etc. Where pumping is involved the cost of pump maintenance and
electricity or other energy source for each pump shall be shown on an
attached sheet.

The report can be prepared from your copy of the monthly reports of water
use being submitted on similar forms in accordance with memorandum to
Managers, National Wildlife Refuges dated July 19, 1963 on Water Use Records.

The use of Forms 3/18/59, 3/19/59 and 3/20/59 described in Circular Letter
to Refuge Managers dated March 23, 1959 shall be discontinued.

A limited supply of Forms 1-RMD 104.0 is enclosed.

Robert F. Russell
Robert F. Russell

Enclosure

MEDICINE LAKE NATIONAL WILDLIFE REFUGE

MEDICINE LAKE, MONTANA

ANNUAL WATER PROGRAM - 1966-67

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

MEDICINE LAKE NATIONAL WILDLIFE REFUGE
MEDICINE LAKE, MONTANA

ANNUAL WATER PROGRAM - 1966-67

I. Record of 1966 Water Use

A. Source of Supply

Run-off water from melting snows and heavy rains during the months of March-May, 1966/7 provided the entire year's water supply for all impoundments on Medicine Lake Refuge. Summer and fall rains were so minor, they did not provide any measurable amount of additional water.

Big Muddy Creek, an intermittent drainage flowing in from Canada, provided over one-half of the water stored in Medicine Lake proper. The remaining water came in from overflow of Gaffney Lake and the northeastern impoundments.

Run-off water from Sheep Creek, Lost Creek and several other drainages provided the bulk of water utilized in Homestead Lake.

Lake, Cottonwood and Sand Creeks provided the water supply for water Units 10-12.

B. Type of Rights

The Bureau of Sport Fisheries and Wildlife through filings posted and recorded in 1936 and 1937 holds Appropriative Water Rights on five drainages. These rights are summarized as follows:

Water Rights Filing No.	Source	Amount of Water Right C.F.S.	Acres under Water Right
233163	Cottonwood Creek	100	3,640
233164	Sand Creek	75	3,640
233165	Lost Creek	25	840
233166	Sheep Creek	20	750
233167	Lake Creek	100	3,640
233168	Big Muddy	50	1,600 Homestead Lake
233169	Big Muddy	1,200	2,000 Medicine Lake

Refuge water use records extend back to June 1936.

C. Purpose of Use

All appropriated waters were used for flood control, water conservancy, irrigation of marshes to produce wildlife food and habitat, disease control, and storage to satisfy late season water demands of the above.

D. Season of Use

Water usage on the refuge was on a year-round basis with the heaviest use occurring between late March and early November.

E. Quantity Used

All refuge water units were filled to capacity in April and May, 1966. As the season progressed all impoundments were gradually lowered by evaporation and percolation.

Water was released from Medicine Lake proper into Homestead Lake in September and October to flush out the lake for botulism control. In November, Homestead Lake was lowered back down to the August level. This was done to provide lower water levels for the winter control of bulrush. Detailed data on the 1966 water usage was reported in the monthly Form LR HYD 103.0 and is summarized as follows:

1966 WATER USE SUMMARY

Source	Water Right	Area of Use	Volume	Total
			Max. cfs	AF
Cottonwood Creek	233163	10 & 11 Water Units & Medicine Lake	50	1,646
Sand Creek	233164	No. 10 Water Unit & Medicine Lake	5	694
Lost Creek	233165	Homestead Lake	0	0
Sheep Creek	233166	Homestead Lake	5	339
Lake Creek	233167	10,11 & 12 Water Units & Medicine Lake	38	2,467
Big Muddy Creek	233168	Homestead Lake	173	4,687
Big Muddy Creek	233169	Medicine Lake	566	10,493

Total A.F. of water into Homestead Lake 5,026

Total A.F. of water into Medicine Lake, 10,
11,12 Water Units 15,300

Grand Total 20,326 A.F.

Released from Medicine Lake into Homestead Lake	5,628 A.F.
Released from Medicine Lake into Muddy Creek	8,600 A.F.
Released from Homestead Lake into Muddy Creek	1,200 A.F.

F. Place of Use

The previous "Water Use Summary" chart also shows the place of use for all waters appropriated during 1966.

G. Adequacy of Supply

The major water supply is derived from melting snow and heavy rains in the spring. A small amount of water is obtained from live springs and summer rains. No permanent streams enter the refuge.

The supply of water during the spring nesting season was only slightly in excess of our needs. We received a total of 20,326 A.F. in comparison to the huge 61,119 A.F. inflow of 1965. All impoundments were near recommended operational level in April, 1966 and thereafter all units receded slowly until freeze-up. Homestead Lake was flushed and refilled in August and September to reduce the danger of a major botulism outbreak. We had botulism starting to show on Homestead Lake in late August.

Medicine Lake proper was drawn down two feet below the August level and three feet below the maximum operating level. This draw down was accomplished during September and October to help reduce the carp and sucker populations. It is hoped that by lowering the lake level, that carp will freeze out or die from lack of oxygen.

The following chart lists the monthly levels in all units during the 1966 season.

1967

MONTHLY RECORD OF GAUGE READINGS - 1966

IMPOUNDMENT	No. 4*	No. 6*	No. 10 Unit	No. 11 Unit	No. 12 Unit	Katy's Lake
PRESNT OPR. LEVEL	1943.00	1937.65	1945.00	1951.54	1954.00	1954.00
January	Frozen	Frozen	Frozen	Frozen	Frozen	Frozen
February	Frozen	Frozen	Frozen	Frozen	Frozen	Frozen
March	Frozen	1936.18	Frozen	Frozen	Frozen	Frozen
April	1942.72	1938.00	1945.37	1952.14	1954.08	1954.10
May	1942.92	1937.58	1944.95	1951.79	1954.20	1954.00
June	1942.80	1937.50	1945.03	1951.46	1954.02	1954.08
July	1942.64	1936.90	1944.81	1951.26	1953.96	1953.82
August	1942.26	1936.20	1943.85	1950.82	1953.46	1953.00
September	1941.90	1936.00	1943.61	1950.62	1953.16	1953.00
October	1940.04	1937.70	1943.37	1950.40	1952.76	1952.76
November	1940.20	1935.48	1943.39	1950.32	1952.92	Frozen
December	Frozen	Frozen	Frozen	Frozen	Frozen	Frozen

All gauge readings as of the first of each month.

* No. 4 - Medicine Lake

* No. 6 - Homestead Lake

Given in the following chart are deficiencies in unit water levels at freeze-up time during the 1961-66 period. The figures are not absolutely correct as there are no accurate measurements of impoundment capacities.

DEFICIENCY IN ACRE FEET AS OF DECEMBER 1.

IMPOUNDMENT	^{omit} 1961	1962	1963	1964	1965	1966	67 = pre-spring runoff year
Medicine Lake	14,790	8,352	8,352	17,000	12,230	*24,800	
Homestead Lake	2,112	1,318	1,600	1,800	2,400	* 2,600	
Katy's Lake	320	262	224	600	140	242	
No. 10 Lake	1,859	671	319	1,700	860	1,526	
No. 11 Lake	493	230	102	400	426	440	
No. 12 Lake	1,383	335	471	1,000	231	1,080	
Totals	20,957	11,168	11,068	22,500	16,287	30,688	

*Water released for disease control and marsh management.

II. Recommendations for 1967

We will need approximately 30,688 A.F. of water up to operational level in the spring of 1967. This produces 25,000 A.F. Any shortage would be critical and would not be critical.

The following recommendations are offered for 1967.

1. Current approved operational level

2. Impoundments will be filled as soon as possible and maintained as long as disease control is needed.

3. Water in excess of what is needed to maintain approved operational levels will be diverted to the next downstream impoundment. Water draining into the northeast end of the refuge will be used to fill water Unit No. 12 first and then to Units 11, 10 and Medicine Lake in that order. Water flowing down the Big Muddy Creek will be used to fill Homestead Lake and Medicine Lake at the same time. Any excess water from Big Muddy Creek will be flushed through Homestead Lake and out into the Muddy Creek again.

4. Homestead Lake should be drawn down 2 feet to the 1935.85 elevation during the latter part of October, 1967. This drawdown is to allow for mechanical control of dense stands of bulrush and phragmites.

18845, 9850, 9468, 20700, 13887, 28088
62 63 64 65 66 67

less homestead

28088
30688
11168
11068
22500
16287
30688

5. The following water use priority is proposed.

<u>Unit</u>	<u>Main Purpose</u>	<u>Priority</u>
Katy's Lake	Nesting & rearing	1
No. 12 Water Unit	Nesting & rearing	1
No. 11 Water Unit	Nesting & rearing	1
No. 10 Water Unit	Storage, nesting & rearing	2
Gaffney Lake	Storage and rearing	2
Medicine Lake	Storage	2
Homestead Lake	Nesting and rearing	1

LAMESTEER NATIONAL WILDLIFE REFUGE
WIBAUX, MONTANA

ANNUAL WATER PROGRAM - 1966

1. Source of Supply

Spring run-off water entering the reservoir via Lamesteer Creek is the entire source of water for the Lamesteer Reservoir.

2. Type of Rights

A "Notice of Appropriation of Water" claiming 427 acre feet of water of Lamesteer Creek was posted on June 30, 1938, over the signature of Wilbert A. Rodgers, Administrative Assistant, Bureau of Biological Survey, as authorized agent for the Secretary of Agriculture. The fact of posting was recorded in Book 6 of Miscellaneous on page 346 in the Wibaux County Recorder's Office, Wibaux, Montana, on July 16, 1938.

3. Purpose of Use

During the 1966 season all appropriated waters were used for flood control, water conservation, propagation and feeding of waterfowl, and for irrigation as called for in the "Notice of Appropriation of Water".

4. Season of Use

Water usage on the refuge is on a yearlong basis with the heaviest demands being made during the ice free period of March through November when evaporation and transpiration rates are the greatest.

5. Quantity Used

Most of the water received was from melting snow and heavy rains during the March-May, 1966 period. On April 19, water was three feet from the top of the spillway. On September 29, the water level was still good and about 5 feet below crest elevation.

6. Place of Use

All appropriated waters were used within the boundaries of the SW $\frac{1}{4}$ of Section 14 and all of Sec. 15, T12N, R60E of Montana Principal Meridian, Wibaux County, Montana.

7. Adequacy of Supply

Except for the May-July period, the water supply for the reservoir was inadequate to maintain a full reservoir and did not supply the appropriated water rights.

8. Recommendations for 1967

We have no recommendations for the 1967 season other than to hold all water entering the reservoir until the spillway elevation is attained; any water in excess to this amount will be spilled on downstream from the refuge. We cannot control the reservoir water elevations nor forecast the amount of spring and summer run-offs that will enter the reservoir.

Submitted: Donald M. White
Refuge Manager

Date: Dec. 16, 1966

Approved: Harmon E. Keadle

Date: 3/21/67